



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 150
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/773,699

02/06/2004

Adam M. Phelps

3PD-M-12544 US

7793

32566

7590

02/15/2006

PATENT LAW GROUP LLP
2635 NORTH FIRST STREET
SUITE 223
SAN JOSE, CA 95134

EXAMINER

KRAVETS, LEONID

ART UNIT

PAPER NUMBER

2189

DATE MAILED: 02/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/773,699

Applicant(s)

PHELPS, ADAM M.

Examiner

Leonid Kravets

Art Unit

2189

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. With regard to the patent application numbers and attorney docket numbers in paragraphs 12, 17 and 21, these must be amended to use pre-grant publication or patent numbers.

Claim Rejections - 35 USC § 103

2. Claims 1-7 rejected under 35 U.S.C. 103(a) as being unpatentable over Strange (US PG Pub 2003/0084242), and further in view of Crockett (US PG Pub 2001/0010070).

As per claim 1, Strange discloses a method for resynchronizing a primary volume in a primary system and a secondary volume in a secondary system over a network (Fig 7), comprising:

when a network connection between the primary system and the secondary system is interrupted (Fig 7, Ref 704):

creating a snapshot of the primary volume (Fig 7, Ref 702) [Note that the snapshot will have been created on the previous pass through state 704,

thus this is the equivalent of creating it when a network connection is interrupted];

Strange does not disclose determining data updates transmitted from the primary system to the secondary system that were not acknowledged by the secondary system;

Crockett discloses determining data updates transmitted from the primary system to the secondary system that were not acknowledged by the secondary system (Paragraph 12).

Strange further discloses when the network connection is reestablished:

determining differences between the snapshot and the primary volume, wherein the differences comprise data in the primary volume that were changed between when the network connection is interrupted and reestablished (Fig 7, Ref 714); and
transmitting the differences and the unacknowledged data updates from the primary system to the secondary system (Fig 7, Ref 716).

As per claim 2, Strange and Crockett disclose the method of claim 1, further comprising, when the network connection is reestablished, updating the secondary volume with the differences and the unacknowledged data updates, wherein the secondary volume becomes an updated copy of the primary volume (Strange, Fig 7, Ref 718).

As per claim 3, Strange and Crockett disclose the method of claim 1, prior to said creating a snapshot, further comprising blocking writes to the primary volume [Strange discloses a snapshot as a point in time representation of the storage system, thus no writes can be occurring at the time in order to have an exact representation of the data (Paragraph 34)].

As per claim 4, Strange and Crockett disclose the method of claim 3, after said creating a snapshot and said determining data updates, further comprising resuming writes to the primary volume (Strange, Fig 7, Ref 720).

As per claim 5, Strange and Crockett disclose the method of claim 1, further comprising deleting the snapshot after said transmitting (Strange, Fig 7, Ref 719).

As per claim 7, please see rejection of claims 1, 2, 3 and 5. Claim 7 is rejected for similar reasons.

With regard to claims 1-5 and 7 above, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the determining and recording writes sent to secondary system but not acknowledged of Crockett into the system of Strange, since Strange and Crockett form the same field of endeavor, namely data resynchronization after failure and this would have allowed for

Art Unit: 2189

preserving data integrity and maintaining the order of storage operations (Crockett, Paragraph 19).

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Strange in view of Crockett as applied to claim 1 above, and further in view of George (US Patent 6,823,376).

As per claim 6, Strange and Crockett disclose the method of claim 1, Strange and Crockett do not explicitly teach the method wherein said determining differences between the snapshot and the primary volume comprises looking up exception tables in the snapshot.

George discloses a method wherein said determining differences between the snapshot and the primary volume comprises looking up exception tables in the snapshot (Fig 8 and Fig 9)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the analyzing exception records of George into the system of Crockett and Strange, since Strange and Crockett form the same field of endeavor, namely data consistency and this would have allowed for a convenient way of comparing the datum.

Conclusion

4. The following is text cited from 37 CFR 1.111(c): In amending in reply to a rejection of claims in an application or patent under reexamination, the applicant or patent owner must clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. The applicant or patent owner must also show how the amendments avoid such references or objections.


5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Kravets whose telephone number is 571-272-2706. The examiner can normally be reached on M-F, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim can be reached at (571)272-4182. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

February 1, 2006


Leonid Kravets
Patent Examiner
Art Unit 2189


BEHZAD JAMES PEIKARI
PRIMARY EXAMINER